## MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT AIR QUALITY DIVISION

## REPORT CERTIFICATION

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Natural Resources and Environment, Air Quality Division upon request.

| Source Name Marathon Petroleum Company LP   |   | County _ Wayne   |
|---|---|--|
| Source Address 1300 South Fort Street   |   | City Detroit   |
| AQD Source ID (SRN) A9831 RO  | P No. 199700013c  | ROP Section No. 01   |
| Please check the appropriate box(es):  Annual Compliance Certification (Pursuant to Rule  | 213(4)(c))  |  |
| Reporting period (provide inclusive dates): From  1. During the entire reporting period, this source was term and condition of which is identified and included method(s) specified in the ROP.  2. During the entire reporting period this source was term and condition of which is identified and include deviation report(s). The method used to determine counless otherwise indicated and described on the enclose.   | To sin compliance with ALL terms by this reference. The method as in compliance with all terms d by this reference, EXCEPT compliance for each term and described the statement of the statement | I(s) used to determine compliance is/are the and conditions contained in the ROP, each for the deviations identified on the enclosed |
| Reporting period (provide inclusive dates): From  1. During the entire reporting period, ALL monitoring deviations from these requirements or any other terms  2. During the entire reporting period, all monitoring and deviations from these requirements or any other terms enclosed deviation report(s).  | To g and associated recordkeeping or conditions occurred.   | g requirements in the ROP were met and no  |
| Other Report Certification     ■ Control Control Control     ■ Control Control Control Control Control     ■ Control Control Control     ■ Control Control Control     ■ Co |   |  |
| Reporting period (provide inclusive dates): From Additional monitoring reports or other applicable docume 2nd Quarter 2012 Continuous Emission MorReport.   | ents required by the ROP are  | /30/2012<br>httached as described:<br>he and Excess Emission   |
| I certify that, based on information and belief formed after supporting enclosures are true, accurate and complete  | reasonable inquiry, the state<br>MPC Investment LLC,<br>its General Partner   | ments and information in this report and the   |
| C.T. Case  Name of Responsible Official (print or type)   | Deputy Assistant Secretary Title  | 313-843-9100   |
| a Case  | TILE  | 7/19/17  |
| Signature of Responsible Official   |   | Date   |

<sup>\*</sup> Photocopy this form as needed.



### Marathon Petroleum Company LP

1300 South Fort Street Detroit, MI 48217 Telephone 313/843-9100

#### VIA FEDERAL EXPRESS

July 19, 2012

Ms. Wilhemina McLemore, District Supervisor Michigan Department of Environmental Quality Air Quality Division 3058 W. Grand Boulevard Suite 2300 Detroit, MI 48202

Re: Continuous Emissions Monitoring System Reports for the Second Quarter 2012; Marathon Petroleum Company LP – Michigan Refining Division

Dear Ms. McLemore:

This report contains information and data related to continuous emissions monitoring systems (CEMS) at Marathon Petroleum Company LP's (MPC's) Michigan Refining Division (MRD) for the first quarter 2012. These reports are submitted pursuant to the General Provisions of the federal New Source Performance Standards (40 CFR 60.7) and Rule 1170 of the Michigan Air Pollution Control Rules. In addition, this report contains information required by the first modification to the November 2005 First Revised NSR Consent Decree, United States of America et. al. v. Marathon Petroleum Company LLC (Civil Action No. 4:01CV-40119-PVG), lodged February 7, 2008 and entered on March 31, 2008. This report is divided into three attachments as follows:

**Appendix** A - CEMS downtime and excess emissions summary reports pursuant to 40 CFR 60.7(d) for all environmental analyzers at the Refinery. The CEMS did not exceed the 5% downtime limit or the 1% excess emission limit.

Appendix B - New Source Performance Standards (NSPS) Subpart J Alternate Monitoring Plan (AMP) data for seven streams: (1) Alky Spent Caustic H2S, (2) CCR/SR Recycle H2 H2S, (3) DHT/Unifiner Recycle H2 H2S, (4) FCCU Disulfide off-gas H2S, (5) CP Spent Caustic Drum Vent H2S, (6) SR Aromatics Sump Vent H2S, and (7) CCR Chlorsorb Vent SO2. The Alky Spent Caustic H2S samples were collected in the mornings beginning April 17th to the end of the quarter. However the samples were inadvertently taken in the morning and not necessarily during release of caustic to the flare.

The Refinery has five additional AMPs for which no data is being submitted: (1) The Crude Spent Caustic Drum was permanently shutdown, (2) The BT Recycle Hydrogen, which was part of the BT Platformer unit, was permanently shutdown in September 2005, (3) CCR Lockhopper Vent Gas which currently cannot physically be vented to the flare or fuel system, (4) Propylene Deethanizer off-gas, and (5) Alky Deethanizer off-gas were re-routed to a location that the refinery's fuel gas H2S analyzer will receive the streams.

All AMPs were obtained in accordance with the NSPS General Provisions (40 CFR §60.13(i)).

**Appendix** C – Data from cylinder gas audits performed on CEMS located on the exhaust of the B&W Boiler, CCR Charge Heater, Crude and Vacuum Heaters, East Plant H2S, FCC Charge Heater, FCCU Regenerator, SRU Thermal Oxidizer, and the Zurn Boiler. A Relative Accuracy Test Audit (RATA) was conducted on the West Plant H2S CEMS on April 18, 2012.

Please note, under the refinery's Title V permit in Table E-1.3, Section III.A.1 it indicates that quarterly cylinder gas audits of the FCCU opacity monitor are required; however, a quarterly cylinder gas audit program does not exist for this type of analyzer. The refinery is maintaining the analyzer according to the PTI 28-02A and completing a yearly audit of the analyzer. The refinery has requested a wording modification in the Title V renewal.

I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information in Appendices A through D of this submittal is, to the best of my knowledge and belief, true, accurate, and complete. Please contact Tabetha Daum at (313) 297-4701 if you have any questions concerning this submittal.

Sincerely,

Marathon Petroleum Company LP

By: MPC Investment LLC, General Partner

Mr. C.T. Case, Deputy Assistant Secretary

#### Attachments

cc: Technical Programs Unit - MDEQ: AQD - c/o Karen Kajiya-Mills - Federal Express

Chief, Environmental Enforcement Section, Environment and Natural Resources Division, U.S. DOJ - Federal Express

U.S. EPA, Director of Air Enforcement Division c/o Matrix Environmental and Geotechnical-Federal Express

Air and Radiation Division, U.S. EPA Region 5 - Federal Express

Office of Regional Counsel, U.S. EPA Region 5 - Federal Express

## Appendix A

**CEMS Downtime and Excess Emissions Summary Reports** 

Pollutant: SO2 CO CO<sub>2</sub> 02 **TRS** H<sub>2</sub>S HC1 Opacity (Circle One) Other: N/A Reporting Quarter: Second 2012 Monitor Model: Limas 11 (NOx) Facility: Marathon Petroleum Company LLC Manufacturer: ABB 1300 South Fort Street Detroit, MI 48217 Emission Limit: 0.20 lbs/MMBTU

Total Operating Hours of Emission Unit: 2184 hrs

Average Time: daily average

| Emission Data Summary  | 1  | CEM Performance Summary  |                                       |                          |  |  |  |
|--|--|--|---------------------------------------|--------------------------|--|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |                                       |                          |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 1.00<br>0.00<br>17.00<br>0.00<br>0.00 | hrs<br>hrs<br>hrs<br>hrs |  |  |  |
| 2. Total Duration  | hrs  | 2. Total Duration  | 18.00                                 | hrs                      |  |  |  |
| 3. Percent of Total Excess Emissions   | 0.00 %                                       | 3. Percent of Total CEM Downtime   | 0.82                                  | %                        |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

Emission Unit: BW Boiler

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx        | (co)                    | CO2       | 02  | TRS         | H2S       | HC1        | Opacity    | (Circle One) |     |
|------------|-----------|------------|-------------------------|-----------|-----|-------------|-----------|------------|------------|--------------|-----|
| Other:     | N/A       |            | -                       |           |     |             |           |            |            |              |     |
| Reporting  | Quarter:  | Second     | 2012                    |           |     | Monito      | or Model: | URAS 14    | (CO)       | 5 (c)        | -   |
|            | Facility: |            |                         | Company I | LLC | Manu        | facturer: | ABB        |            |              |     |
|            | 8f<br>69  | Detroit, M | th Fort Stre<br>I 48217 | et        |     | Emissi      | on Limit: | 400 ppm    |            |              |     |
| Emiss      | ion Unit: | BW Boile   | r (CO)                  |           |     | Avera       | ge Time:  | daily aver | age        |              |     |
|            |           |            |                         |           | Т   | otal Operat | ing Hours | of Emis    | sion Unit: | 2184         | nrs |

| Emission Data Summary  |  | CEM Performance Summary  |                                       |                                      |  |  |  |
|--|--|--|---------------------------------------|--------------------------------------|--|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |                                       |                                      |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 1.00<br>0.00<br>17.00<br>0.00<br>0.00 | _hrs<br>_hrs<br>_hrs<br>_hrs<br>_hrs |  |  |  |
| 2. Total Duration  3. Percent of Total Excess Emissions  | 0.00 hrs                                     | Total Duration     Percent of Total CEM Downtime   | 18.00                                 | _<br>_hrs<br>%                       |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

| Pollutant: | SO2       | NOx                      | co   | CO2 | (02)  | TRS         | H2S        | HC1       | Opacity    | (Circle One) |      |
|------------|-----------|--------------------------|------|-----|-------|-------------|------------|-----------|------------|--------------|------|
| Other:     | N/A       |                          |      |     |       |             |            |           |            |              |      |
| Reporting  | Quarter:  | Second                   | 2012 | 55  |       | Monite      | or Model:  | Magnos    | 106 (O2)   |              |      |
|            | Facility: | Marathon I               |      |     | y LLC | _ Manı      | ıfacturer: | ABB       |            |              | n    |
|            |           | 1300 Sout<br>Detroit, MI |      | eet |       | _<br>Emissi | on Limit:  | none      |            |              |      |
| Emissi     | ion Unit: | BW Boiler                | (O2) |     |       | Avera       | ge Time:   | none      | -04        |              |      |
|            |           |                          |      |     | Te    | otal Opera  | ting Hours | s of Emis | sion Unit: | 2184 hr      | rs . |

| Emission Data Summar   | у  | CEM Performance Summary  |   |  |  |  |  |
|--|--|--|---|--|--|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |   |  |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 1.00 hrs 0.00 hrs 17.00 hrs 0.00 hrs 0.00 hrs |  |  |  |  |
| 2. Total Duration  | 0.00 hrs                                     | 2. Total Duration  | 18.00hrs                                      |  |  |  |  |
| 3. Percent of Total Excess Emissions   | 0.00%  | 3. Percent of Total CEM Downtime   | 0.82%   |  |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time)  $\times$  100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: N/A

Reporting Quarter: Second 2012 Monitor Model: Limas 11 (NOx)

Facility: Marathon Petroleum Company LLC Manufacturer: ABB

1300 South Fort Street

Detroit, MI 48217

Emission Limit: 80 ppm

Average Time: 7 day average

Emission Unit: FCCU Regenerator Emission Limit: 70 ppm

Average Time: 365 day average

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  |  | 1. Duration of CEM Downtime During Source Operation  |   |  |  |  |
|--|--|--|---|--|--|--|
| 1. Duration of Excess Emissions  |  |  |   |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 0.00 hrs 0.00 hrs 10.00 hrs 0.00 hrs 0.00 hrs |  |  |  |
| Total Duration     Percent of Total Excess Emissions   | hrs  | Total Duration     Percent of Total CEM Downtime   | hrs   |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx        | (co)                      | CO2          | 02 | TRS         | H2S       | HC1      | Opacity    | (Circle One) |
|------------|-----------|------------|---------------------------|--------------|----|-------------|-----------|----------|------------|--------------|
| Other:     | N/A       |            |                           |              |    |             |           |          |            |              |
| Reporting  | Quarter:  | Second     | 2012                      |              |    | Monito      | or Model: | URAS 14  | (CO)       |              |
|            | Facility: |            | Petroleum<br>th Fort Stre |              | LC | Manu        | facturer: | ABB      | A          |              |
|            |           | Detroit, M |                           |              |    | Emissi      | on Limit: | 500 ppm  |            |              |
| Emiss      | ion Unit: | FCCU Re    | generator                 | - 6 - 1846 - |    | Avera       | ge Time:  | one hour | average    |              |
|            |           |            |                           |              | To | otal Operat | ing Hours | of Emis  | sion Unit: | 2184 hrs     |

| Emission Data Summary                |          | CEM Performance Summary  1. Duration of CEM Downtime During Source Operation |       |       |  |  |
|--------------------------------------|----------|--|-------|-------|--|--|
| 1. Duration of Excess Emissions      |          |  |       |       |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction   | 0.00  | _ hrs |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction  | 0.00  | hrs   |  |  |
| C. Process Problems                  | 4.00 hrs | C. QA Calibration  | 10.00 | hrs   |  |  |
| D. Other Known Causes                | 5.00 hrs | D. Other Known Causes  | 0.00  | hrs   |  |  |
| E. Unknown Causes                    | 0.00 hrs | E. Unknown Causes  | 0.00  | hrs   |  |  |
| 2. Total Duration                    | 9.00 hrs | 2. Total Duration  | 10.00 | _hrs  |  |  |
| 3. Percent of Total Excess Emissions | 0.41 %   | 3. Percent of Total CEM Downtime   | 0.46  | _%    |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time)  $\times$  100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx                   | CO        | CO2 | (02)  | TRS        | H2S        | HC1     | Opacity    | (Circle One) |
|------------|-----------|-----------------------|-----------|-----|-------|------------|------------|---------|------------|--------------|
| Other:     | N/A       |                       |           |     |       |            |            |         |            |              |
| Reporting  | Quarter:  | Second                | 2012      |     |       | Monit      | or Model:  | Magnos  | 16 (O2)    |              |
|            | Facility: | Marathon<br>1300 Sout |           |     | y LLC | Man        | ufacturer: | ABB     |            |              |
|            |           | Detroit, MI           |           |     |       | Emiss      | ion Limit: | none    |            |              |
| Emiss      | ion Unit: | FCCU Rec              | generator |     |       | Avera      | age Time:  | none    |            |              |
|            |           |                       |           |     | т     | otal Opera | ting Hours | of Emis | sion Unit: | 2184 hrs     |

| Emission Data Summary                |          | CEM Performance Summary                          |       |           |  |  |
|--------------------------------------|----------|--|-------|-----------|--|--|
| 1. Duration of Excess Emissions      |          | Duration of CEM Downtime During Source Operation |       |           |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 0.00  | hrs       |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00  | hrs       |  |  |
| C. Process Problems                  | 0.00hrs  | C. QA Calibration                                | 10.00 | hrs       |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 0.00  | hrs       |  |  |
| E. Unknown Causes                    | 0.00 hrs | E. Unknown Causes                                | 0.00  | _<br>_hrs |  |  |
| 2. Total Duration                    | 0.00 hrs | 2. Total Duration                                | 10.00 | _hrs      |  |  |
| 3. Percent of Total Excess Emissions | 0.00%    | 3. Percent of Total CEM Downtime                 | 0.46  | _%        |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: N/A

Reporting Quarter: Second 2012 Monitor Model: Limas 11 (SO2)

Facility: Marathon Petroleum Company LLC Manufacturer: ABB

1300 South Fort Street

Detroit, MI 48217

Emission Limit: 70 ppm

Average Time: 7 day average

Emission Unit: FCCU Regenerator Emission Limit: 35 ppm

Average Time: 365 day average

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary                |          | 1. Duration of CEM Downtime During Source Operation |       |           |  |  |
|--------------------------------------|----------|---|-------|-----------|--|--|
| 1. Duration of Excess Emissions      |          |   |       |           |  |  |
| A. Startup/Shutdown                  | 0.00hrs  | A. Monitor Malfunction                              | 0.00  | hrs       |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                         | 0.00  | hrs       |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                   | 10.00 | hrs       |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                               | 0.00  | hrs       |  |  |
| E. Unknown Causes                    | 0.00hrs  | E. Unknown Causes                                   | 0.00  | _<br>_hrs |  |  |
| 2. Total Duration                    | 0.00 hrs | 2. Total Duration                                   | 10.00 | _ hrs     |  |  |
| 3. Percent of Total Excess Emissions | 0.00 %   | 3. Percent of Total CEM Downtime                    | 0.46  | _%        |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: N/A

Reporting Quarter: Second 2012 Monitor Model: Lighthawk 560

Facility: Marathon Petroleum Company LLC Manufacturer: Teledyne Monitor Labs

1300 South Fort Street

Detroit, MI 48217 Emission Limit: 20% opacity

Emission Unit: FCCU Regenerator Average Time: 6 minute average

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary                |      | CEM Performance Summary  1. Duration of CEM Downtime During Source Operation |                                  |      |      |  |
|--------------------------------------|------|--|----------------------------------|------|------|--|
| 1. Duration of Excess Emissions      |      |  |                                  |      |      |  |
| A. Startup/Shutdown                  | 0.00 | hrs  | A. Monitor Malfunction           | 0.00 | hrs  |  |
| B. Control Equipment                 | 0.00 | hrs  | B. Non- Monitor Malfunction      | 0.00 | hrs  |  |
| C. Process Problems                  | 4.50 | hrs  | C. QA Calibration                | 4.00 | hrs  |  |
| D. Other Known Causes                | 4.40 | hrs  | D. Other Known Causes            | 0.00 | hrs  |  |
| E. Unknown Causes                    | 0.00 | hrs  | E. Unknown Causes                | 0.00 | hrs  |  |
| 2. Total Duration                    | 8.90 | _hrs   | 2. Total Duration                | 4.00 | _hrs |  |
| 3. Percent of Total Excess Emissions | 0.41 | _%   | 3. Percent of Total CEM Downtime | 0.18 | _%   |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx        | CO          | CO2        | 02    | TRS (H2S) HC1 Opacity (Circle One)              |
|------------|-----------|------------|-------------|------------|-------|---|
| Other:     | N/A       |            | -1          |            |       |   |
| Reporting  | Quarter:  | Second     | 2012        | -          |       | Monitor Model: 2000GC                           |
|            | Facility: | Marathon   | Petroleun   | n Company  | LLC   | Manufacturer: ABB                               |
|            |           | 1300 Sou   | th Fort Str | eet        |       |   |
|            |           | Detroit, M | II 48217    |            |       | Emission Limit: 162 ppm                         |
| Emiss      | ion Unit: | West Pla   | nt Fuel Ga  | s NSPS Hea | aters | Average Time: 3 hour average                    |
|            |           |            |             |            | т.    | otal Operating House of Emission Units 2194 hrs |

| Emission Data Summary                |          | CEM Performance Summary                          |           |  |  |  |  |
|--------------------------------------|----------|--|-----------|--|--|--|--|
| Duration of Excess Emissions         |          | Duration of CEM Downtime During Source Operation |           |  |  |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 33.00 hrs |  |  |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00 hrs  |  |  |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 3.00 hrs  |  |  |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 0.00 hrs  |  |  |  |  |
| E. Unknown Causes                    | 0.00 hrs | E. Unknown Causes                                | 0.00 hrs  |  |  |  |  |
| 2. Total Duration                    | 0.00 hrs | 2. Total Duration                                | 36.00 hrs |  |  |  |  |
| 3. Percent of Total Excess Emissions | 0.00%    | 3. Percent of Total CEM Downtime                 | 1.65%     |  |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx         | CO   | CO2      | 02    | TRS (H2S) HC1 Opacity (Circle One)              |
|------------|-----------|-------------|--|----------|-------|---|
| Other: 1   | N/A       |             |  |          |       |   |
| Reporting  | Quarter   | Second      | 2012   |          |       | Monitor Model: 2000 Vista II                    |
|            | Facility: | Marathon I  |  |          | LLC   | Manufacturer: ABB                               |
|            |           | Detroit, MI | A Superior State of the State o | eet      |       | Emission Limit: 162 ppm                         |
| Emissi     | on Unit:  | East Plant  | Fuel Gas   | NSPS Hea | iters | Average Time: 3 hour average                    |
|            |           |             |  |          | Т     | otal Operating Hours of Emission Unit: 2184 hrs |

| Emission Data Summar   | у  | CEM Performance Summary  |                                       |                          |  |  |  |  |
|--|--|--|---------------------------------------|--------------------------|--|--|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |                                       |                          |  |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 0.00<br>0.00<br>17.00<br>0.00<br>0.00 | _hrs _hrs _hrs _hrs _hrs |  |  |  |  |
| Total Duration     Percent of Total Excess Emissions   | hrs  | Total Duration     Percent of Total CEM Downtime   | 17.00                                 | hrs                      |  |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time)  $\times$  100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

Pollutant: SO2 NOx CO CO<sub>2</sub> 02 TRS H2S HC1 Opacity (Circle One) Other: N/A Reporting Quarter: Second 2012 Monitor Model: Limas 11 (NOx) Facility: Marathon Petroleum Company LLC Manufacturer: ABB 1300 South Fort Street Detroit, MI 48217 Emission Limit: 0.2 lbs/MMBTU Emission Unit: Zurn Boiler Average Time: 24 hour average Total Operating Hours of Emission Unit: 2184 hrs

| у  | CEM Performance Summary  |  |  |  |  |
|--|--|--|--|--|--|
|  | Duration of CEM Downtime During Source Operatio  |  |  |  |  |
| 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 0.00<br>0.00<br>2.00<br>0.00   | _hrs _hrs _hrs _hrs _hrs   |  |  |
| hrs  | 2. Total Duration  | 2.00   | hrs  |  |  |
|  | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs  | 0.00         hrs         A. Monitor Malfunction           0.00         hrs         B. Non- Monitor Malfunction           0.00         hrs         C. QA Calibration           0.00         hrs         D. Other Known Causes           E. Unknown Causes         E. Unknown Causes | 0.00         hrs         A. Monitor Malfunction         0.00           0.00         hrs         B. Non- Monitor Malfunction         0.00           0.00         hrs         C. QA Calibration         2.00           0.00         hrs         D. Other Known Causes         0.00           0.00         hrs         E. Unknown Causes         0.00           0.00         hrs         2. Total Duration         2.00 |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant:  | SO2      | NOx        | (00)                      | CO2 | 02  | TRS        | H2S        | HC1       | Opacity     | (Circle One) |  |
|-------------|----------|------------|---------------------------|-----|-----|------------|------------|-----------|-------------|--------------|--|
| Other: N    | I/A      |            | -                         |     |     |            |            |           |             |              |  |
| Reporting ( | Quarter: | Second     | 2012                      | _   |     | Monito     | or Model:  | URAS 26   | (CO)        |              |  |
| 1           |          |            | Petroleum                 |     | LLC | Manu       | ufacturer: | ABB       |             |              |  |
|             |          | Detroit, N | uth Fort Str<br>//I 48217 | eet |     | Emissi     | ion Limit: | 0.1 lbs/M | MBTU        | 200          |  |
| Emissi      | on Unit: | Zurn Boil  | er                        |     |     | Avera      | age Time:  | annual ro | lling avera | ge           |  |
|             |          |            |                           |     | To  | otal Opera | ting Hour  | s of Emis | sion Unit:  | 2184hrs      |  |

| Emission Data Summary   |                      | CEM Performance Summary                                |      |            |  |  |  |
|---|----------------------|--|------|------------|--|--|--|
| Duration of Excess Emissions  |                      | Duration of CEM Downtime During Source Operation       |      |            |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li></ul>  | hrs                  | A. Monitor Malfunction     B. Non- Monitor Malfunction | 0.00 | _hrs       |  |  |  |
| <ul><li>C. Process Problems</li><li>D. Other Known Causes</li></ul> | 0.00 hrs<br>0.00 hrs | C. QA Calibration D. Other Known Causes                | 2.00 | hrs<br>hrs |  |  |  |
| E. Unknown Causes   | 0.00hrs              | E. Unknown Causes                                      | 0.00 | hrs_       |  |  |  |
| 2. Total Duration   | hrs                  | 2. Total Duration                                      | 2.00 | _ hrs      |  |  |  |
| 3. Percent of Total Excess Emissions                                | 0.00 %               | 3. Percent of Total CEM Downtime                       | 0.09 | _%         |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

If there were no exceedences, the required analyses were made and no CEM downtime and/or excess emissions occurred during the reporting period.

| Pollutant: | SO2       | NOx         | CO   | CO2 | (02)  | TRS       | H2S        | HC1      | Opacity   | (Circle One | e)  |
|------------|-----------|-------------|------|-----|-------|-----------|------------|----------|-----------|-------------|-----|
| Other:     | N/A       |             |      |     |       |           |            |          |           |             |     |
| Reporting  | Quarter:  | _Second :   | 2012 |     |       | Monito    | or Model:  | Magnos 2 | (O2)      |             |     |
|            | Facility: | Marathon I  |      |     | y LLC | Manu      | facturer:  | ABB      |           |             |     |
|            |           | Detroit, MI |      |     |       | Emissi    | on Limit:  | none     |           |             |     |
| Emissi     | on Unit:  | Zurn Boiler |      |     |       | Avera     | ge Time: _ | none     |           |             |     |
|            |           |             |      |     | Tota  | al Operat | ing Hours  | of Emiss | ion Unit: | 2184        | hrs |

| CEM Performance Summary  |                                      |                          |  |  |  |
|--|--------------------------------------|--------------------------|--|--|--|
| Duration of CEM Downtime During Source Operation   |                                      |                          |  |  |  |
| <ul><li>A. Monitor Malfunction</li><li>B. Non- Monitor Malfunction</li><li>C. QA Calibration</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00<br>0.00<br>2.00<br>0.00<br>0.00 | _hrs _hrs _hrs _hrs _hrs |  |  |  |
| tal Duration   | 2.00                                 | _hrs                     |  |  |  |
|  | cent of Total CEM Downtime           |                          |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: ( SO2 NOx CO CO<sub>2</sub> 02 TRS H<sub>2</sub>S HC1 Opacity (Circle One) Other: N/A Reporting Quarter: Second 2012 Monitor Model: LIMAS-11-UV Facility: Marathon Petroleum Company LLC Manufacturer: ABB Advance Optima 1300 South Fort Street Detroit, MI 48217 Emission Limit: 250 ppm

Total Operating Hours of Emission Unit: 2184 hrs

Average Time: 12 hour average

| Emission Data Summar   | У  | CEM Performance Summary  |   |  |  |  |
|--|--|--|---|--|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During S  | ource Operation                               |  |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 27.00 hrs 0.00 hrs 3.00 hrs 0.00 hrs 0.00 hrs |  |  |  |
| Total Duration     Percent of Total Excess Emissions   | hrs  | Total Duration     Percent of Total CEM Downtime   | 30.00 hrs                                     |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

Emission Unit: Sulfur Recovery Unit Thermal Oxidizer

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx        | co          | CO2       | (02)       | TRS                | H2S        | HC1       | Opacity    | (Circle One) |
|------------|-----------|------------|-------------|-----------|------------|--------------------|------------|-----------|------------|--------------|
| Other:     | N/A       |            | -           |           |            |                    |            |           |            |              |
| Reporting  | Quarter:  | Second     | 2012        | -         |            | Monit              | or Model:  | MAGNOS    | 106/206    |              |
|            | Facility: | Marathon   | Petroleum   | n Compar  | ny LLC     | Mani               | ufacturer: | ABB Adv   | ance Optin | na           |
|            |           | 1300 Sou   | th Fort Str | eet       |            |                    |            |           |            |              |
|            |           | Detroit, N | 11 48217    |           |            | Emiss              | ion Limit: | none      |            |              |
| Emiss      | ion Unit: | Sulfur Re  | covery Uni  | it Therma | I Oxidizer | Average Time: none |            |           |            |              |
|            |           |            |             |           | Tot        | al Onera           | ting Hour  | e of Emie | eion Unit: | 2184 bre     |

| Emission Data Summary                |          | CEM Performance Summary                          |       |      |  |  |
|--------------------------------------|----------|--|-------|------|--|--|
| Duration of Excess Emissions         |          | Duration of CEM Downtime During Source Operation |       |      |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 27.00 | hrs  |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00  | hrs  |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 3.00  | hrs  |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 0.00  | hrs  |  |  |
| E. Unknown Causes                    | 0.00hrs  | E. Unknown Causes                                | 0.00  | hrs  |  |  |
| 2. Total Duration                    | 0.00 hrs | 2. Total Duration                                | 30.00 | _hrs |  |  |
| 3. Percent of Total Excess Emissions | 0.00%    | 3. Percent of Total CEM Downtime                 | 1.37  | _%   |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx        | (co)                          | CO2 | 02  | TRS        | H2S       | HC1        | Opacity    | (Circle One) |  |
|------------|-----------|------------|-------------------------------|-----|-----|------------|-----------|------------|------------|--------------|--|
| Other:     | N/A       |            | _                             |     |     |            |           |            |            |              |  |
| Reporting  | Quarter:  | Second     | 2012                          |     |     | Monito     | or Model: | URAS 14    | (CO)       | -            |  |
|            | Facility: |            | n Petroleum<br>uth Fort Stree |     | LLC | Manu       | facturer: | ABB        |            |              |  |
|            |           | Detroit, M |                               | et  |     | Emissi     | on Limit: | 400 ppm    | •          |              |  |
| Emissi     | ion Unit: | CCR Cha    | arge Heater (                 | CO) |     | Avera      | ge Time:  | daily aver | age        |              |  |
|            |           |            |                               |     | To  | tal Operat | ina Hours | of Emiss   | sion Unit: | 2194 bro     |  |

| Emission Data Summary  | 1  | CEM Performance Summary  |                              |                                 |  |  |
|--|--|--|------------------------------|---------------------------------|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |                              |                                 |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 0.00<br>0.00<br>5.00<br>0.00 | hrs<br>hrs<br>hrs<br>hrs<br>hrs |  |  |
| 2. Total Duration  | hrs  | 2. Total Duration  | 5.00                         | _<br>_hrs                       |  |  |
| 3. Percent of Total Excess Emissions   | 0.00%  | 3. Percent of Total CEM Downtime   | 0.23                         | _%                              |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

| Pollutant: | SO2       | NOx        | co           | CO2   | (02)   | TRS      | H2S        | HC1     | Opacity    | (Circle One)  |
|------------|-----------|------------|--------------|-------|--------|----------|------------|---------|------------|---------------|
| Other:     | N/A       |            | -            |       |        |          |            |         |            |               |
| Reporting  | Quarter:  | Second     | 2012         | 6.0   |        | Monito   | or Model:  | Magnos  | 106 (O2)   | 37            |
|            | Facility: | Marathon   | Petroleum    | Compa | ny LLC | Manu     | ıfacturer: | ABB     |            |               |
|            |           | 1300 Sou   | th Fort Stre | eet   |        |          |            |         |            | - WARRANG W.L |
|            |           | Detroit, M | I 48217      |       |        | Emissi   | on Limit:  | none    |            |               |
| Emiss      | ion Unit: | CCR Cha    | rge Heater   | (02)  |        | Avera    | ıge Time:  | none    |            |               |
|            |           |            |              |       | Tot    | al Onera | tina Hours | of Emie | eion Unit: | 2184 bre      |

| Emission Data Summary                | ·        | CEM Performance Summary                          |          |  |  |  |
|--------------------------------------|----------|--|----------|--|--|--|
| 1. Duration of Excess Emissions      |          | Duration of CEM Downtime During Source Operation |          |  |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 0.00 hrs |  |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00 hrs |  |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 5.00 hrs |  |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 0.00 hrs |  |  |  |
| E. Unknown Causes                    | 0.00 hrs | E. Unknown Causes                                | 0.00 hrs |  |  |  |
| 2. Total Duration                    | hrs      | 2. Total Duration                                | 5.00 hrs |  |  |  |
| 3. Percent of Total Excess Emissions | 0.00 %   | 3. Percent of Total CEM Downtime                 | 0.23%    |  |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

Pollutant: SO2 CO<sub>2</sub> 02 TRS H2S HC<sub>1</sub> Opacity (Circle One) Other: N/A Reporting Quarter: Second 2012 Monitor Model: URAS 14 (CO) Facility: Marathon Petroleum Company LLC Manufacturer: ABB 1300 South Fort Street Detroit, MI 48217 Emission Limit: 400 ppm Emission Unit: FCCU Charge Heater Average Time: 1 hour average

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  | •   | CEM Performance Summary  1. Duration of CEM Downtime During Source Operation   |                                       |                          |  |  |
|--|-----|--|---------------------------------------|--------------------------|--|--|
| 1. Duration of Excess Emissions  |     |  |                                       |                          |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> |     | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes     E. Unknown Causes | 0.00<br>0.00<br>6.00<br>73.00<br>0.00 | _hrs _hrs _hrs _hrs _hrs |  |  |
| Total Duration     Percent of Total Excess Emissions   | hrs | Total Duration     Percent of Total CEM Downtime   | 79.00                                 | _ms<br>_hrs<br>_%        |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2       | NOx                                   | CO           | CO2 | (02)   | TRS       | H2S        | HC1     | Opacity    | (Circle One) |     |
|------------|-----------|---------------------------------------|--------------|-----|--------|-----------|------------|---------|------------|--------------|-----|
| Other:     | N/A       | · · · · · · · · · · · · · · · · · · · | -            |     |        |           |            |         |            |              |     |
| Reporting  | Quarter:  | Second                                | 2012         |     |        | Monit     | or Model:  | Magnos  | 106 (O2)   |              |     |
|            | Facility: |                                       | Petroleum    |     | ny LLC | Man       | ufacturer: | ABB     |            |              |     |
|            |           | 1300 Sou                              | th Fort Stre | eet |        |           |            |         |            |              |     |
|            |           | Detroit, M                            | II 48217     |     |        | Emiss     | ion Limit: | none    |            |              |     |
| Emiss      | ion Unit: | FCCU Ch                               | arge Heate   | er  |        | Avera     | age Time:  | none    |            |              |     |
|            |           |                                       |              |     | To     | tal Opera | ting Hours | of Emis | sion Unit: | 2184         | hrs |

| Emission Data Summary                |          | CEM Performance Summary                          |       |           |  |  |
|--------------------------------------|----------|--|-------|-----------|--|--|
| 1. Duration of Excess Emissions      |          | Duration of CEM Downtime During Source Operation |       |           |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 0.00  | hrs       |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00  | hrs       |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 2.00  | hrs       |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 73.00 | hrs       |  |  |
| E. Unknown Causes                    | 0.00 hrs | E. Unknown Causes                                | 0.00  | _<br>_hrs |  |  |
| 2. Total Duration                    | hrs      | 2. Total Duration                                | 75.00 | _ hrs     |  |  |
| 3. Percent of Total Excess Emissions | 0.00 %   | 3. Percent of Total CEM Downtime                 | 3.43  | _%        |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time)  $\times$  100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: N/A

Reporting Quarter: Second 2012 Monitor Model: Limas 11 (NOx)

Facility: Marathon Petroleum Company LLC Manufacturer: ABB

1300 South Fort Street

Detroit, MI 48217 Emission Limit: 0.05 lbs/MMBTU

Emission Unit: Crude/Vacuum Charge Heater Average Time: annual rolling average

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  |  | CEM Performance Summary  |                                      |                          |  |  |
|--|--|--|--------------------------------------|--------------------------|--|--|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Source Operation   |                                      |                          |  |  |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction B. Non- Monitor Malfunction C. QA Calibration D. Other Known Causes E. Unknown Causes | 0.00<br>0.00<br>2.00<br>0.00<br>0.00 | _hrs _hrs _hrs _hrs _hrs |  |  |
| Total Duration     Percent of Total Excess Emissions   | 0.00 hrs                                     | Total Duration     Percent of Total CEM Downtime   | 2.00                                 | _<br>_hrs<br>_%          |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

| Pollutant: | SO2        | NOx        | CO           | CO2       | (02)    | TRS       | H2S        | HC1     | Opacity    | (Circle One) |
|------------|------------|------------|--------------|-----------|---------|-----------|------------|---------|------------|--------------|
| Other:     | N/A        |            | 6)           |           |         |           |            |         |            |              |
| Reporting  | Quarter:   | Second     | 2012         | •         |         | Monit     | or Model:  | Magnos  | 106 (O2)   |              |
|            | Facility:  | Marathon   |              |           | y LLC   | Man       | ufacturer: | ABB     |            |              |
|            |            | 1300 Sou   | th Fort Stre | eet       |         |           |            |         |            |              |
|            |            | Detroit, M | l 48217      |           |         | Emiss     | ion Limit: | none    |            | 34-1         |
| Emiss      | sion Unit: | Crude/Vac  | cuum Cha     | rge Heate | er (O2) | Avera     | age Time:  | none    | - W        |              |
|            |            |            |              |           | Tot     | tal Opera | ting Hours | of Emis | sion Unit: | 2184hrs      |

| Emission Data Summary                |          | CEM Performance Summary                          |      |      |  |  |
|--------------------------------------|----------|--|------|------|--|--|
| Duration of Excess Emissions         |          | Duration of CEM Downtime During Source Operation |      |      |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 0.00 | hrs  |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00 | hrs  |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 2.00 | hrs  |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes                            | 0.00 | hrs  |  |  |
| E. Unknown Causes                    | 0.00hrs  | E. Unknown Causes                                | 0.00 | hrs  |  |  |
| 2. Total Duration                    | 0.00 hrs | 2. Total Duration                                | 2.00 | _hrs |  |  |
| 3. Percent of Total Excess Emissions | 0.00%    | 3. Percent of Total CEM Downtime                 | 0.09 | _%   |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

(% CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: Flare Pilot

Detroit, MI 48217

Reporting Quarter: Second 2012 Monitor Model: SLX-202

Facility: Marathon Petroleum Company LLC Manufacturer: Powertrol

1300 South Fort Street

Emission Unit: Vents to CP Flare Average Time: continuously

Total Operating Hours of Emission Unit: 2184 hrs

Emission Limit: Pilot Light Present

| Emission Data Summary                |          | CEM Performance Summary                          |      |      |  |  |
|--------------------------------------|----------|--|------|------|--|--|
| 1. Duration of Excess Emissions      |          | Duration of CEM Downtime During Source Operation |      |      |  |  |
| A. Startup/Shutdown                  | 0.00 hrs | A. Monitor Malfunction                           | 0.00 | hrs  |  |  |
| B. Control Equipment                 | 0.00 hrs | B. Non- Monitor Malfunction                      | 0.00 | hrs  |  |  |
| C. Process Problems                  | 0.00 hrs | C. QA Calibration                                | 0.00 | hrs  |  |  |
| D. Other Known Causes                | 0.00 hrs | D. Other Known Causes*                           | 0.00 | hrs  |  |  |
| E. Unknown Causes                    | 1.00 hrs | E. Unknown Causes                                | 0.00 | hrs  |  |  |
| 2. Total Duration                    | 1.00hrs  | 2. Total Duration                                | 0.00 | _hrs |  |  |
| 3. Percent of Total Excess Emissions | 0.05 %   | 3. Percent of Total CEM Downtime                 | 0.00 | _%   |  |  |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

If there were no exceedences, the required analyses were made and no CEM downtime and/or excess emissions occurred during the reporting period.

\*Other Known Causes: Hours in this category are attributed to weather, including rain and snow, as well as fog from cooling tower operation interfering with the sight of the analyzer. Visual checks verified a pilot was present.

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

TRS

Pollutant:

SO2

NOx

CO

CO<sub>2</sub>

02

H<sub>2</sub>S

HC1

Opacity (Circle One)

Other: Flare Pilot

Reporting Quarter: Second

2012

Monitor Model: SLX-202

Facility: Marathon Petroleum Company LLC

Manufacturer: Powertrol

1300 South Fort Street Detroit, MI 48217

Emission Limit: Pilot Light Present

Emission Unit: Vents to Alkylation Unit Flare

Average Time: continuously

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  |  | CEM Performance Summary   |                                      |                          |
|--|--|---|--------------------------------------|--------------------------|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Section 2. Duration of CEM Downtime During Section 2. During Sect | ource Opera                          | tion                     |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction     B. Non- Monitor Malfunction     C. QA Calibration     D. Other Known Causes*     E. Unknown Causes   | 0.00<br>0.00<br>0.00<br>0.00<br>0.00 | _hrs _hrs _hrs _hrs _hrs |
| 2. Total Duration  | 0.00 hrs                                     | 2. Total Duration   | 0.00                                 | _hrs                     |
| 3. Percent of Total Excess Emissions   | %  | 3. Percent of Total CEM Downtime  | 0.00                                 | _%                       |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

<sup>\*</sup>Other Known Causes: Hours in this category are attributed to weather, including rain and snow, as well as fog from cooling tower operation interfering with the sight of the analyzer. Visual checks verified a pilot was present.

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: Flare Pilot

Reporting Quarter: Second 2012 Monitor Model: SLX-202

Facility: Marathon Petroleum Company LLC Manufacturer: Powertrol

1300 South Fort Street

Detroit, MI 48217

Emission Limit: Pilot Light Present

Emission Unit: Vents to Unifiner Flare Average Time: continuously

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  |  | CEM Performance Summary   |                                      |              |
|--|--|---|--------------------------------------|--------------|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Sc  | ource Opera                          | tion         |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction B. Non- Monitor Malfunction C. QA Calibration D. Other Known Causes* E. Unknown Causes | 0.00<br>0.00<br>0.00<br>0.00<br>0.00 | hrshrshrshrs |
| 2. Total Duration  | 0.00hrs                                      | 2. Total Duration   | 0.00                                 | hrs          |
| 3. Percent of Total Excess Emissions   | 0.00 %                                       | 3. Percent of Total CEM Downtime  | 0.00                                 | _%           |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

If there were no exceedences, the required analyses were made and no CEM downtime and/or excess emissions occurred during the reporting period.

\*Other Known Causes: Hours in this category are attributed to weather, including rain and snow, as well as fog from cooling tower operation interfering with the sight of the analyzer. Visual checks verified a pilot was present.

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

Pollutant: SO2 NOx CO CO2 O2 TRS H2S HC1 Opacity (Circle One)

Other: Flare Pilot

Reporting Quarter: Second 2012 Monitor Model: SLX-202

Facility: Marathon Petroleum Company LLC Manufacturer: Powertrol

1300 South Fort Street

Detroit, MI 48217

Emission Limit: Pilot Light Present

Emission Unit: Vents to Crude Flare Average Time: continuously

Total Operating Hours of Emission Unit: 2184 hrs

| Emission Data Summary  |  | CEM Performance Summary   |                                       |                          |
|--|--|---|---------------------------------------|--------------------------|
| 1. Duration of Excess Emissions  |  | Duration of CEM Downtime During Section 2. Duration of CEM Downtime During Section 2. During Sect | ource Opera                           | tion                     |
| <ul><li>A. Startup/Shutdown</li><li>B. Control Equipment</li><li>C. Process Problems</li><li>D. Other Known Causes</li><li>E. Unknown Causes</li></ul> | 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs 0.00 hrs | A. Monitor Malfunction B. Non- Monitor Malfunction C. QA Calibration D. Other Known Causes* E. Unknown Causes   | 0.00<br>0.00<br>0.00<br>0.00<br>11.00 | _hrs _hrs _hrs _hrs _hrs |
| 2. Total Duration  | hrs  | 2. Total Duration   | 11.00                                 | _hrs                     |
| 3. Percent of Total Excess Emissions   | 0.00%  | 3. Percent of Total CEM Downtime  | 0.50                                  | _%                       |

<sup>(%</sup> Total excess emissions) = (Total duration of excess emissions) / (Total operating time) x 100%

<sup>(%</sup> CEM downtime) = (Total duration of CEM downtime) / (Total operating time) x 100%

<sup>\*</sup>Other Known Causes: Hours in this category are attributed to weather, including rain and snow, as well as fog from cooling tower operation interfering with the sight of the analyzer. Visual checks verified a pilot was present.

## Appendix B

## New Source Performance Standards (NSPS) Subpart J Alternate Monitoring Plan (AMP) Data

| Most<br>Recent<br>Sample<br>Dates<br>1/4/2012<br>5/13/2012 | Complex 3 (RADAR) - B  FCCU Disulfide off-gas H2S ppm 2 x year 0 0 | Most<br>Recent<br>Sample<br>Dates<br>1/4/2012<br>5/3/2012 | Complex 3 (RADAR) - C  CP Spent Caustic Drum Vent H2S ppm 2 x year 0 0          | Most<br>Recent<br>Sample<br>Dates<br>3/29/2012<br>6/28/2012 | Complex 4 (AMP Sheet) - D  SR Aromatics Sump Vent H2S ppm 2 x year 0 0 | Most<br>Recent<br>Sample<br>Dates<br>3/28/2012<br>6/27/2012 | Complex 4 (AMP Sheet) - E  CCR Chlorsorb Vent SO2 ppm 2 x year 0 0 |
|--|--|---|---|---|--|---|--|
|  | Complex 2 (AMP Sheet) - A Alky Spent Caustic H2S                   |   | Complex 4 (Lab Data) CCR/SR Recycle H2  |   | Complex 2 (Lab Data) DHT/Unifiner Recycle                              |   |  |
|  | When flaring   |   | H2S ppm<br>2 x year   |   | H2 H2S ppm<br>5 x week   |   |  |
| 4 1 2012   |  |   | 14RHH2S LDd<br><1   |   | 07RHH2S.LD<br>Unit down  |   |  |
| 42/2012  |  |   | <1  |   | <1   |   |  |
| 4 3 2012   |  |   | <i< td=""><td></td><td>55<br/>200</td><td>:</td><td></td></i<>                  |   | 55<br>200  | :   |  |
| 4 5 2012   |  |   | <1  |   | 732  | •   |  |
| 47 2012  |  |   | <1<br><1  |   | 718<br><1  | •   |  |
| 48 2012 49 2012  |  |   | <1<br><1  |   | 717  | •   |  |
| 4 10 2012  |  |   | <1  |   | <1<br><1   |   |  |
| 4 11 2012  |  |   | <1<br><1  |   | <1<br>15   |   |  |
| 4 13 2012  |  |   | <1  |   | <1   |   |  |
| 4 14 2012  |  |   | <1<br><1  |   | <1<br><1   |   |  |
| 4 16 2012  | 0  | ••  | <1<br><1  |   | 50   | •   |  |
| 4 18 2012  | 0  |   | <1  |   | <1<br><1   |   |  |
| 4 19 2012 4 20 2012  | 0  | :-  | <1<br><1  |   | <1<br><1   |   |  |
| 4 21 2012 4 22 2012  | 0  |   | <1  |   | <1   |   |  |
| 4 23 2012  | 0  | ••  | <i< td=""><td></td><td><br/>&lt;1</td><td></td><td></td></i<>                   |   | <br><1   |   |  |
| 4/24/2012  | 0  | ::  | <i<br><i< td=""><td></td><td>&lt;1<br/>&lt;1</td><td></td><td></td></i<></i<br> |   | <1<br><1   |   |  |
| 4 26 2012  | 0  |   |   |   | <1   |   |  |
| 4 27 2012  | 0  | :   | <1<br><1  |   | <1   |   |  |
| 4 29 2012<br>4 30 2012                                     | 0  | ::  | <1  |   | <1   |   |  |
| 5 1 2012   | 0  | ••  | <1<br><1  |   | <1<br><1   |   |  |
| 5/2/2012<br>5/3/2012                                       | 0  | ::  | <1  |   | <1<br><1   |   |  |
| 5 4 2012   | 0  |   |   |   | <1   |   |  |
| 5 5 2012<br>5 6 2012                                       | 0  | ••  | <1<br><1  |   | 10<br><1   | •   |  |
| 5 7 2012<br>5 8 2012                                       | 0  | ::  | <i<br><i< td=""><td></td><td>&lt;1<br/>&lt;1</td><td></td><td></td></i<></i<br> |   | <1<br><1   |   |  |
| 5 9 2012   | 0  | ••  | <1  |   | <1   |   |  |
| 5 10 2012<br>5 11 2012                                     | 0  | :   | <1<br><1  |   | <br><i< td=""><td></td><td></td></i<>                                  |   |  |
| 5 12 2012 5 13 2012  | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 5 14 2012  | 0  | ••  | <1  |   | <1   |   |  |
| 5 15 2012<br>5 16 2012                                     | 0  | :   | <1<br><1  |   | <i<br><i< td=""><td></td><td></td></i<></i<br>                         |   |  |
| 5 17 2012<br>5 18 2012                                     | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 5 19 2012  | 0  |   | <1  |   | <1   |   |  |
| 5 20 2012  | 0  | :   | <1<br><1  |   | <i<br>&lt;1</i<br>   |   |  |
| 5 22 2012 5 23 2012  | 0  |   | <1<br><1  |   | <1   |   |  |
| 5 24 2012  | 0  | ••  | <1  |   | <1   |   |  |
| 5 25 2012<br>5 26 2012                                     | 0  |   | <1<br><1  |   | <1<br><1   |   |  |
| 5 27 2012<br>5 28 2012                                     |  | :-  | <1<br><1  |   | <1   |   |  |
| 5 29 2012  | 0  | ••  | <1  |   | <1<br><1   |   |  |
| 5 30 2012<br>5 31 2012                                     | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 6 2 2012   | •  |   | <1<br><1  |   | <1   |   |  |
| 6 3 2012   | 0  | ••  | <1  |   | <1<br><1   |   |  |
| 6 4 2012<br>6 5 2012                                       | 0  | ::  | <1<br><1  |   | <1<br><1   |   |  |
| 6 6 2012<br>6 7 2012                                       | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 6 8 2012   | 0  | ••  | <1  |   | <1   |   |  |
| 6 9 2012   | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 6 11 2012 6 12 2012  |  |   | <1  |   | <1   |   |  |
| 6 13 2012  | 0  |   | <1  |   | <br><1   |   |  |
| 6 14 2012 6 15 2012  | 0  | ::  | <1<br><1  |   | <1<br><1   |   |  |
| 6 16 2012<br>6 17 2012                                     |  |   | <1  |   | <1   |   |  |
| 6 18 2012  | 0  | ••  | <1<br><1  |   | <1<br><1   |   |  |
| 6 19 2012 6 20 2012  | 0  | :   | <1<br><1  |   | <1<br><1   |   |  |
| 6 21 2012  | 0  |   | <1  |   | <1   |   |  |
| 6 22 2012 6 23 2012  | •  | :   | <1<br><1  |   | <1<br>75   |   |  |
| 6 24 2012<br>6 25 2012                                     |  | :   | <1<br><1  |   | <1   |   |  |
| 6 26 2012  | 0  | ••  | <1  |   | 35<br><1   | ž.  |  |
| 6 27 2012<br>6 28 2012                                     | 0  |   | <1<br><1  |   | <1<br><1   |   |  |
| 6 29 2012<br>6 30 2012                                     | 0  | :   | <1  |   | <1   |   |  |
| V01812757  | **Readings were taken during                                       | the morning   | 100   |   | <1   |   |  |

# Appendix C Cylinder Gas Audit Information

Analyzer: Crude and Vacuum Heater NOx

Analyzer Manufacturer: ABB

Analyzer model #'s: Limas11 (NOx) and Magnos 106 (O2)

Constituents monitored (w/ranges): NOx (0-100) O2 (0-10%)

Date CGA performed: 4/12/2012

Performed by: Glen Senczysztn and Bryan Longtine

Calibration gases used:

| MAP stock # | Constituent | low- or mid- | Cylinder# | Exp date | Certified concentration | Units |
|-------------|-------------|--------------|-----------|----------|-------------------------|-------|
| 76-188-132  | NO          | low          | EB0014057 | 01/28/13 | 25.4                    | ppm   |
| 76-188-219  | 02          | low          | EB0005557 | 10/20/14 | 5.51                    | %     |
| 76-188-132  | NO          | mid          | CC319137  | 01/11/13 | 55.8                    | ppm   |
| 76-188-215  | O2          | mid          | CC8457    | 07/28/12 | 9.12                    | %     |

#### Low-level CGA:

| Start time End time |       | NO    | 02    |  |
|---------------------|-------|-------|-------|--|
| 10:21               | 10:33 | 25.4  | 5.32  |  |
| 10:33 10:45         |       | 25.4  | 5.32  |  |
| 10:45               | 10:57 | 25.4  | 5.32  |  |
| Ave                 | rage  | 25.4  | 5.32  |  |
| Cal gas value       |       | 25.4  | 5.51  |  |
| CGA accuracy        |       | 0.00% | 3.45% |  |

| Start time    | art time End time |       | 02    |
|---------------|-------------------|-------|-------|
| 10:59         | 11:11             | 55.8  | 8.92  |
| 11:11 11:23   |                   | 55.8  | 8.92  |
| 11:23         | 11:35             | 55.8  | 8.92  |
| Ave           | rage              | 55.8  | 8.92  |
| Cal gas value |                   | 55.8  | 9.12  |
| CGA accuracy  |                   | 0.00% | 2.19% |

Analyzer: East Plant Fuel Gas

Analyzer: West Plant Fuel Gas

Analyzer Manufacturer: ABB

Analyzer Manufacturer: ABB

Analyzer model #'s: 2000 VISTA II

Analyzer model #'s: 2000GC

Constituents monitored

(w/ranges): H2S (0-300)

Constituents monitored

(w/ranges): H2S (0-300)

Date CGA performed: 4/12/2012

Date CGA performed:

3/16/2012

Performed by: D. Pek and E. Justa

Performed by: B. Longtine

Calibration gases used:

| MAP stock # | Constituent | low- or mid- | Cylinder#      | Exp date | Certified concentration | Units |
|-------------|-------------|--------------|----------------|----------|-------------------------|-------|
|             |             | East         | Plant Fuel Ga  | IS       |                         |       |
| 76-188-017  | H2S         | low          | EB0031076      | 06/03/12 | 75.3                    | ppm   |
| 76-188-019  | H2S         | mid          | EB0015328      | 03/08/13 | 163                     | ppm   |
|             |             | Wes          | t Plant Fuel G |          | 100                     | ppiii |
| 76-188-017  | H2S         | low          | EB0031076      | 06/03/12 | 75.3                    | ppm   |
| 76-188-019  | H2S         | mid          | EB0015328      | 03/08/13 | 163                     | ppm   |

#### **East Plant Fuel Gas**

#### Low-level CGA:

| Start time End time |      | H2S  |
|---------------------|------|------|
| 9:36                | 9:41 | 76.6 |
| 9:41                | 9:46 | 74.4 |
| 9:46                | 9:51 | 75.1 |
| Avei                | rage | 75.4 |
| Cal gas value       |      | 75.3 |
| CGA accuracy        |      | 0.1% |

#### Mid-level CGA:

| Start time End time |         | H2S   |
|---------------------|---------|-------|
| 9:56                | 10:01   | 163.8 |
| 10:01               | 10:06   | 163.4 |
| 10:06               | 10:11   | 156.9 |
| Aver                | age     | 161.4 |
| Cal gas             | s value | 163.0 |
| CGA accuracy        |         | 1.0%  |

A RATA was conducted on the West Plant Fuel Gas CEMS 4/18/2012

Analyzer: Zurn Boiler

Analyzer Manufacturer: ABB

Analyzer Model Number's: ABB Limas 11 (NOx), ABB Uras 14 (CO), and ABB Magnos 106 (O2)

Serial Number's: 3.341196.1 (NOx), 3.341671.1 (CO), and 3.341670.1 (O2)

Constituents monitored (w/ranges): NOx (0-500), CO high range (0-500), CO low range (0-50) and O2 (0-10%)

Date CGA performed: 6/19/2012

Performed by: Bryan Longtine

Calibration gases used:

| MAP stock # | Constituent   | low- or<br>mid- | Cylinder # | Exp date | Certified concentration | Units |
|-------------|---------------|-----------------|------------|----------|-------------------------|-------|
| 76-188-232  | NOx           | low             | EB0025464  | 02/02/13 | 120                     | ppm   |
| 76-188-232  | CO high range | low             | EB0025464  | 02/02/13 | 125                     | ppm   |
| 76-188-259  | CO low range  | low             | EB0033563  | 09/23/14 | 11.9                    | ppm   |
| 76-188-259  | 02            | low             | EB0033563  | 09/23/14 | 5.00                    | %     |
| 76-188-231  | NOx           | mid             | EB0025213  | 01/07/13 | 268                     | ppm   |
| 76-188-231  | CO high range | mid             | EB0025213  | 01/07/13 | 273                     | ppm   |
| 76-188-269  | CO low range  | mid             | EB0033318  | 09/23/14 | 27.80                   | ppm   |
| 76-188-269  | 02            | mid             | EB0033318  | 09/23/14 | 8.98                    | %     |

#### Low-level CGA:

| Start time    | End time | NOx  | CO high range | CO low range | 02   |
|---------------|----------|------|---------------|--------------|------|
| 18:49         | 19:01    | 119  | 127.8         | 13.08        | 5.08 |
| 19:01         | 19:14    | 119  | 127.8         | 13.03        | 5.07 |
| 19:14         | 19:27    | 119  | 127.8         | 12.92        | 5.07 |
| Ave           | rage     | 119  | 128           | 13.0         | 5.07 |
| Cal gas value |          | 120  | 125           | 11.9         | 5.00 |
| CGA accuracy  |          | 0.8% | 2.2%          | 9.3%         | 1.5% |

| Start time   | End time | NOx       | CO high range | CO low range | 02   |  |  |     |     |  |  |      |
|--------------|----------|-----------|---------------|--------------|------|--|--|-----|-----|--|--|------|
| 19:36        | 19:48    | 266 278.1 |               |              |      |  |  | 266 | 266 |  |  | 9.05 |
| 19:48        | 20:00    |           |               | 9.07         |      |  |  |     |     |  |  |      |
| 20:00        | 20:13    | 266       | 278.5         | 28.51        | 9.06 |  |  |     |     |  |  |      |
| Aver         | age      | 266       | 278           | 28.6         | 9.06 |  |  |     |     |  |  |      |
| Cal gas      | s value  | 268       | 273           | 27.8         | 8.98 |  |  |     |     |  |  |      |
| CGA accuracy |          | 0.7%      | 2.0%          | 2.7%         | 0.9% |  |  |     |     |  |  |      |

Analyzer: B&W Boiler CEMS

Analyzer Manufacturer: ABB

Analyzer model #'s: Limas 11 (NOx), Magnos 106 (O2), Uras 14 (CO)

Constituents monitored (w/ranges): NOx (0-500), CO (0-500), O2 (0-10%)

Date CGA performed: 4/2/2012

Performed by: Eric Justa and Glen Senczyszyn

Calibration gases used:

| MAP stock # | Constituent | low- or<br>mid- | Cylinder # | Exp date | Certified concentration | Units |
|-------------|-------------|-----------------|------------|----------|-------------------------|-------|
| 76-188-232  | NO          | low             | EB0025464  | 02/02/13 | 119                     | ppm   |
| 76-188-232  | CO          | low             | EB0025464  | 02/02/13 | 125                     |       |
| 76-188-219  | 02          | low             | EB0031049  | 10/20/14 |                         | ppm   |
| 76-188-231  | NO          | mid             | EB0025951  |          | 5.52                    | %_    |
| 76-188-231  | CO          |                 |            | 11/09/13 | 270                     | ppm   |
| 76-188-215  |             | mid             | EB0025951  | 11/09/13 | 277                     | ppm   |
| 70-100-215  | O2          | mid             | EB0023341  | 06/24/13 | 8.99                    | %     |

#### Low-level CGA:

| Start time   | End time      | NO    | CO   | 02   |  |
|--------------|---------------|-------|------|------|--|
| 10:28        | 10:40         | 117   | 125  | 5.52 |  |
| 10:40        | 10:52         | 117   | 125  | 5.52 |  |
| 10:52        | 11:04         | 117   | 125  | 5.52 |  |
| Avei         | rage          | 117.0 | 125  | 5.52 |  |
|              | Cal gas value |       | 125  | 5.52 |  |
| CGA accuracy |               | 1.7%  | 0.0% | 0.0% |  |

High-level CGA:

| Start time    | End time | NO I  | CO   | 02   |
|---------------|----------|-------|------|------|
| 14:30         | 14:43    | 279   | 277  | 8.96 |
| 14:43         | 14:55    | 279   | 277  | 8.94 |
| 14:55         | 15:07    | 279   | 277  | 8.99 |
| Ave           | rage     | 279.0 | 277  | 8.96 |
| Cal gas value |          | 270.0 | 277  | 8.99 |
| CGA accuracy  |          | 3.3%  | 0.0% | 0.3% |

Analyzer: CCR Charge Heater

Analyzer Manufacturer: ABB

Analyzer model #'s: URAS 14 (CO) and Magnos 106 (O2)

Constituents monitored (w/ranges): CO (0-500) and O2 (0-10%)

Date CGA performed: 6/25/2012

Performed by: Eric Justa and Erik Carlson

Calibration gases used:

| MAP stock # | Constituent | low- or<br>mid- | Cylinder# | Exp date | Certified concentration | Units    |
|-------------|-------------|-----------------|-----------|----------|-------------------------|----------|
| 76-188-166  | CO          | low             | CC275924  | 05/15/15 | 122                     | ppm      |
| 76-188-166  | 02          | low             | CC275924  | 05/15/15 | 4.96                    | %        |
| 76-188-165  | CO          | mid             | CC311111  | 01/23/15 | 274                     |          |
| 76-188-165  | 02          | mid             | CC311111  | 01/23/15 | 8.93                    | ppm<br>% |

#### Low-level CGA:

| Start time         End time           10:05         10:13 |         | CO    | 02   |
|---|---------|-------|------|
|   |         | 122   | 4.96 |
| 10:13   | 10:21   | 122   | 4.96 |
| 10:21   | 10:29   | 122   | 4.96 |
| Ave   | rage    | 122   | 4.96 |
| Cal gas value   |         | 122.0 | 4.96 |
| CGA ad  | ccuracy | 0.0%  | 0.0% |

| Start time End time |             | CO   | 02   |  |
|---------------------|-------------|------|------|--|
| 10:32               | 10:32 10:41 |      | 8.87 |  |
| 10:41               | 10:50       | 270  | 8.87 |  |
| 10:50               | 10:59       | 270  | 8.87 |  |
| Ave                 | rage        | 270  | 8.87 |  |
|                     | s value     | 274  | 8.93 |  |
| CGA a               | ccuracy     | 1.5% | 0.7% |  |

Analyzer: FCC Charge Heater

Analyzer Manufacturer: ABB

Analyzer model #'s: URAS 14 (CO) and Magnos 106 (O2)

Constituents monitored (w/ranges): CO (0-500) and O2 (0-10%)

Date CGA performed: 5/2/2012

Performed by: Eric Justa and Bryan Longtine

#### Calibration gases used:

| MAP stock # | Constituent | low- or<br>mid- | Cylinder# | Exp date | Certified concentration | Units |
|-------------|-------------|-----------------|-----------|----------|-------------------------|-------|
| 76-188-166  | CO          | low             | CC275912  | 06/28/13 | 124                     | ppm   |
| 76-188-166  | O2          | low             | CC275912  | 06/28/13 | 5.02                    | %     |
| 76-188-165  | CO          | mid             | EB0023488 | 02/13/15 | 275                     | ppm   |
| 76-188-165  | O2          | mid             | EB0023488 | 02/13/15 | 8.98                    | %     |

#### Low-level CGA:

| Start time End time |         | CO   | 02   |  |
|---------------------|---------|------|------|--|
| 9:41                | 9:50    |      | 5.05 |  |
| 9:50                | 9:59    | 124  | 5.05 |  |
| 9:59                | 10:08   | 124  | 5.05 |  |
| Ave                 | rage    | 124  | 5.05 |  |
| Cal ga              | s value | 124  | 5.02 |  |
| CGA a               | ccuracy | 0.0% | 0.6% |  |

| Start time End time |             | CO   | O2   |  |
|---------------------|-------------|------|------|--|
| 10:08               | 10:08 10:17 |      | 9.00 |  |
| 10:17               | 10:27       | 272  | 9.00 |  |
| 10:27               | 10:37       | 272  | 9.00 |  |
| Ave                 | rage        | 272  | 9.00 |  |
| Cal ga              | s value     | 275  | 8.98 |  |
| CGA a               | ccuracy     | 1.1% | 0.2% |  |

Analyzer: FCCU Regenerator exhaust CEMS

Analyzer Manufacturer: ABB

Analyzer model #'s: Limas 11 (SO2/NOx), Magnos 106 (O2), Uras 14 (CO/CO2)

Constituents monitored (w/ranges): SO2 (0-200), NOx (0-200), CO (0-1000), CO2 (0-20%), O2 (0-10%)

Date CGA performed: 5/28/2012

Performed by: Bryan Longtine and Eric Justa

Calibration gases used:

| MAP stock # | Constituent | low- or<br>mid- | Cylinder# | Exp date | Certified concentration | Units |
|-------------|-------------|-----------------|-----------|----------|-------------------------|-------|
| 76-188-218  | SO2         | low             |           |          | 47.7                    | ppm   |
| 76-188-218  | NO          | low             | EB0014006 | 11/15/12 | 49.6                    | ppm   |
| 76-188-218  | CO          | low             |           |          | 247                     | ppm   |
| 76-188-218  | CO2         | low             |           |          | 6.53                    | %     |
| 76-188-219  | 02          | low             | EB0003884 | 05/16/14 | 5.51                    | %     |
| 76-188-213  | SO2         | mid             |           |          | 111                     | ppm   |
| 76-188-213  | NO          | mid             | 1         |          | 111                     | ppm   |
| 76-188-213  | CO          | mid             | CC308954  | 3/24/14  | 546                     | ppm   |
| 76-188-213  | CO2         | mid             | 1         | 1 1      | 12.1                    | %     |
| 76-188-215  | O2          | mid             | EB0023341 | 00/04/40 | 8.99                    | %     |
| 76-188-215  | NO2         | mid             |           | 06/24/13 | 90.9                    | ppm   |

#### Low-level CGA:

| Start time   | End time | SO2  | NO   | CO    | CO2  | 02   |
|--------------|----------|------|------|-------|------|------|
| 9:48         | 10:00    | 44.3 | 54   | 253   | 6.7  | 5.87 |
| 10:00        | 10:12    | 44.3 | 52.7 | 253   | 6.7  | 5.87 |
| 10:12        | 10:26    | 46.2 | 52.2 | 253   | 6.7  | 5.88 |
| Aver         | age      | 45   | 53   | 253   | 6.70 | 5.87 |
| Cal gas      | s value  | 47.7 | 49.6 | 247.0 | 6.53 | 5.51 |
| CGA accuracy |          | 5.8% | 6.8% | 2.4%  | 2.6% | 6.6% |

| Start time | End time | SO2   | NO    | CO   | CO2  | 02   |
|------------|----------|-------|-------|------|------|------|
| 10:26      | 10:39    | 112.1 | 112.8 | 543  | 12.2 | 9.35 |
| 10:39      | 10:52    | 112.8 | 112.8 | 543  | 12.2 | 9.35 |
| 10:52      | 11:05    | 112.8 | 112.8 | 543  | 12.2 | 9.35 |
| Average    |          | 112.6 | 113   | 543  | 12.2 | 9.35 |
| Cal gas    | s value  | 111   | 111.0 | 546  | 12.1 | 8.99 |
| CGA ac     | ccuracy  | 1.4%  | 1.6%  | 0.5% | 0.8% | 4.0% |

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